Mini High Speed Dome Camera

User Manual

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1. Introduction

1.1 Features

※ Camera Specifications:

- CCD Sensor: 1/4″ Interline Transfer CCD.
- Zoom Magnification: 10X Optical zoom, 10X Digital zoom.
- Day & Night function : The camera is configured to switch to the black and white mode automatically under low light conditions and at night with mechanical IR Cut filter for clear images.
- Various focus mode: Auto Focus / Manual Focus / Semi-Auto Focus.

※Powerful Pan / Tilt Functions

- Max. 360°/sec high speed Pan / Tilt motion.
- Automatic turn over.
- Support bearing indication.
- Programmable cruise and presets.
- Soft address enables to set up the address and number of the camera.
- Adopt Vector Drive Technology, Pan / Tilt motions are accomplished in a shortest path . As a result , time to target view is reduced seriously and the video on the monitor is very nature to watch.
- For jog operation using a controller , since ultra slow speed 0.05°/sec can be reached. It is very easy to locate camera to desired target view.
- Support zoom proportional Pan / Tilt speed. Camera can be moved to a desired position in accurate manner even through high zoom ratio.

※Preset, Linear, Preset position cruise, Pattern, Auto Scan.

- Max. 256 presets are assignable and characteristics of each preset can be set up independently.
- Linear scan enables to move camera repetitive between two preset positions with assigned speed.
- Preset position cruise: the group can have max 30 entities of preset. This enables for camera to move a combinations of this functions repetitively.

- 4 Patterns with 100 commands can be recorded and executed. This enables the camera to track a surveillance trajectory as closely as possible.
- 360° continuous scan.
- 360° intermittent scan. The camera will have seconds stop during each 90°turning.
- Auto scan : this enables to move the camera to execute the certain scan when no-operation for a long time.
- Reserved Presets for special purpose : besides regular 256 presets, direct calling of reserved presets enable to set up many of camera functions with / without using OSD menu.

※PTZ(Pan /Tilt /Zoom) Control

- RS485 Communication.
- Pelco D / Pelco P, special protocols available.

※OSD (On screen Display) Menu

- OSD menu is provided to display the status of camera and to configure the functions interactively.
- 2 Language are supported.
- Each display item can be turned ON or OFF independently.

1.2 Specifications

Video Signal System		NTSC	PAL
Camera	CCD	1/4″ Interline Transfer CCD	
	Max. Pixels	811(H) x 508(V)	795(H) x 596(V)
	Horizontal Resolution	500TV Line(Color), 570 TV Line(B/W)	
	S/N Ratio	50dB(AGC off)	
	Zoom	X10 Optical Zoom, X10 Digital Zoom	
	Focal Length	F1.8, f=3.8~38mm	
	Min. illumination	0.7Lux(Color),0.02Lux(B/W), F1.8, 50 IRE	
	Day & Night	Auto / Day/ Night function (ICR)	
	Focus	Auto / Manual/ SemiAuto	
	Iris	Auto / Manual	
	Shutter Speed	1/50~1/120000 sec	
	AGC	General / High / Off	
	White Balance	ATW(Indoor/Outdoor); AWC,Manual (Red, Blue gain adjustable)	
	BLC	Low / Middle / High / Off	
	DNR	Low / Middle / High / Off	
Pan / Tilt	Range	Pan :0~360°(Endless) Tilt: 0~180°	
		Preset : 360°/sec	
	Pan/Tilt Speed	Manual: Pan 300°/sec; Tilt 180°. (proportional to zoom)	
		Auto Pan : 1~180°/sec adjustable	
	Preset	256 Preset(Label, Camera Image Setting)	
	Cruise	Auto Pan, Pattern, Scan.	
General	Other Functions	Auto Flip, Auto Parking, Power up Action etc.	
	Communication	RS-485	
	Protocol	Pelco-D, Pelco-P, Special protocols available	
	Baud rate	2400, 4800, 9600	
	Language	English	

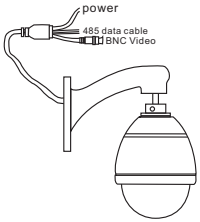
2. Installation

2.1 Installation and Connection

2.1.1. Wall Mount

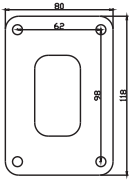
(1) Connect Camera

Plug the terminals into the bottom of the main unit, then, fix the main unit with screws supplier.



(2) Bracket Installation

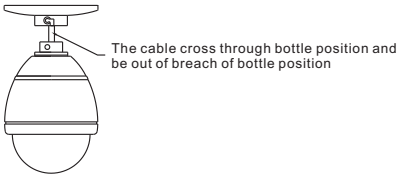
Use the screws provided to secure the wall mount to the wall.



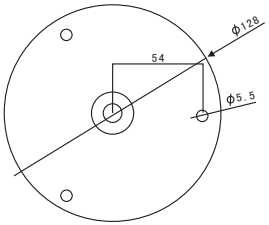
2.1.2.Ceiling Mount

(1) Fix the main unit on the bracket.

After wiring cables to terminals , plug the terminals into the bottom of main unit . Then, fix the main unit with screws provided

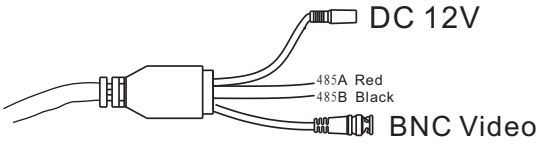


(2)Install ceiling mount bracket on the ceiling using screws provided.



2.1.3 Cabling

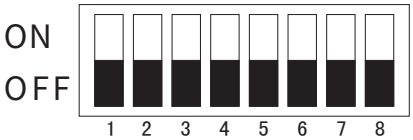
Connector Interface



2.2 DIP Switch Setup

Before you install the camera, you should set the DIP switches to configure the camera ID, Baud rate, and communication protocol.
Default ID : 1
Baud rate: 2400
Protocol: Pelco-D.

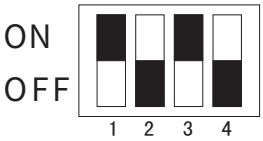
2.2.1 Camera ID Setup



- The range of ID is 0~255. Factory default of Camera ID is 1.
- ID number of camera is set using binary number. The number from 1~8 present 1, 2, 4, 8, 16, 32, 64, 128. For example, switch 1, 3, 5, 7 to “ON” position, the corresponding ID should be 1+4+16+64=85.
  The example is shown below.

ID No	Code Switch	ID No	Code Switch
	1 2 3 4 5 6 7 8		1 2 3 4 5 6 7 8
0	0 0 0 0 0 0 0 0	10	0 1 0 1 0 0 0 0
1	1 0 0 0 0 0 0 0	20	0 0 1 0 1 0 0 0
2	0 1 0 0 0 0 0 0	30	0 1 1 1 1 0 0 0
3	1 1 0 0 0 0 0 0	50	0 1 0 0 1 1 0 0
4	0 0 1 0 0 0 0 0	100	0 0 1 0 0 1 1 0
5	1 0 1 0 0 0 0 0	101	1 0 1 0 0 1 1 0
6	0 1 1 0 0 0 0 0	150	0 1 1 0 1 0 0 1
7	1 1 1 0 0 0 0 0	200	0 0 0 1 0 0 1 1
8	0 0 0 1 0 0 0 0	255	1 1 1 1 1 1 1 1

2.2.2 Communication Protocol and Baud rate Setup



● Select the appropriate protocol with DIP switch combination.

Switch State					Protocol
Pin No	1	2	3	4	
Protocol	OFF	OFF			PELCO-P
	ON	OFF			PELCO-D
	OFF	ON			Auto
	ON	ON			Reserved
Baud rate			OFF	OFF	9600
			ON	OFF	2400
			OFF	ON	4800
			ON	ON	9600

3.Operation

3.1 Check points before operation

- Before power is connected, please check the cables carefully.
- The camera ID of the controller must be identical to that of the camera to be controlled. The camera ID can be checked in the System Information of OSD Menu.
- If you controller supports multi-protocols, the protocol must be changed to match to that of the camera.
- If you change camera protocol by changing DIP switch , the change will be effective after you reboot the camera.
- Since the operation method can be different for each controller available , refer to the manual for your controller if camera can not be controller properly.

3.2 Operation

Note: The manual will refer to our CCTV tester to explain how to operate and control the camera.

3.2.1 Preset function pre-check

- Check how to operate preset , Scan, Auto Pan and Pattern function with controller or DVR in advance to operate camera function using them.(refer to your System keyboard Manual)
- If controller or DVR has no pattern button or function , use shortcut keys with preset numbers. For more information, refer to “Reserved Preset” in this manual.
- Use “UP, DOWN, LEFT, RIGHT” direction key to move to a desired position,， then, press ”Zoom, Lens, Iris” to adjust the pictures.
- Press “preset setup” to input number, then confirm by a press on setup key.
  Call Preset
- Press “ Call Preset ” key and input No of preset , the confirm by a press on “Setup” key , the camera will move to the desired preset , meanwhile , the zoom, lens and iris will automatically change to preset states

3.2.2 Reserved Preset

Some Preset numbers are reserved for direct access to specific functions in OSD menu . These direct commands via preset provide quick execution of various functions using keyboard controller as well as simplify the interface with DVR and IP equipments.

Reserved Preset	Function
Go/Set Preset <95>	Enters into OSD menu
Go Preset <80>	Reserved.
Go Preset <82>	Runs cruise function
Go Preset <83>	Clean all presets
Go Preset <84 ~ 87>	Runs Pattern 1 ~ 4
Go Preset <88>	Reserved (Runs wide dynamic function)
Go Preset <89>	Reserved (Stop wide dynamic function)
Go Preset<96>	Runs 360° scan(pause 3 seconds per 90°)
Go Preset <97>	Runs linear scan
Go Preset <98>	Runs cruise function
Go Preset <99>	Runs Auto pan function

3.3 Camera Lens control

3.3.1 Zoom

Adjust the lens distance to enlarge or downsize the image for best effect or wide-angle effect.

- Using “ZOOM IN / TELE” key to enlarge the images.
- Using “ZOOM OUT/ WIDE” key to downsize the images.

3.3.2 Focus

Adjust definition of the object of scene

- Press “Focus Far” key to shorten the distance of far scene.
- Press “Focus Near” key to shorten the distance of near scene.

3.3.3 Iris

Press “Iris Open” key to adjust the brightness.

4.How To Use OSD Menu

After power up or restart, the present Protocol, Baud rate and Address will be displayed on the screen as below:

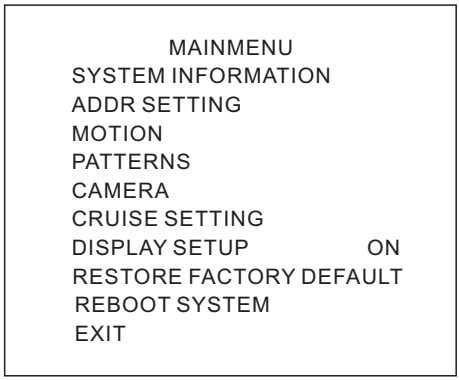
```
PTOL:  PELCO-P
COMM: 2400、N、8、1
ADDR:  1
```

4.1 Basic operation of Main menu

- Go <Preset 95> to enter into main menu.
- Using “Iris open” and “Iris close” to confirm or exit main menu.
- Using “UP/DOWN” keys or joystick to move cursor to sub-menu, press “Iris open” to enter into menu.
- Using “UP/DOWN” keys or joystick to move cursor to the function and press ”Iris open” to choose the function.
- Using “UP/DOWN” keys or joystick to set up and press “Iris open” to save.
- Move the cursor to “BACK” and press “Iris open” to back to main menu.

Note: There might display different information due to different camera.

4.2 Main menu



<SYSTEM INFORMATION>：Shows system information.
<ADDR SETTING>：Select and setup Soft/Hard address.
<MOTION>：Setup for motion related settings.
<PATTERNS>：Setup for Patterns.
<CAMERA>：Configure Camera related functions and data.
<CRUISE SETTING>：Setup presets scan.
<DISPLAY SETUP>：Enable / Disable of OSD display on main screen.
<RESTORE FACTORY DEFAULT>：Restore factory settings.
<REBOOT SYSTEM>：Reboot the system.

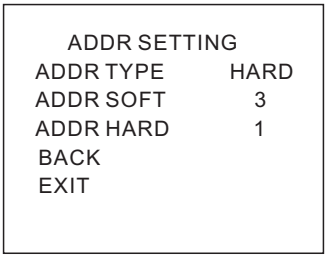
4. 2. 1 System Information

SYSTEM INFORMATION	
COM	2400、N、8、1
ADDRESS	1
PROTOCOL	PELCO-P
PRESETS	256
SOFTWARE VERSION	V5.2
BACK	
EXIT	

<COM>：Shows current Baud rate.
<ADDRESS>：Shows current Camera ID for PTZ control, 0~255.
<PROTOCOL>：Shows current protocol for PTZ control.
<PRESETS>：Shows the preset numbers.
<SOFTWARE VERSION>：Shows current software version of camera.

Notice: the system information can not be changed.

4. 2. 2 Address Setting



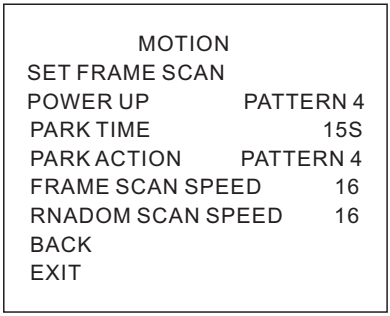
ADDR TYPE：Choose the address type (Hard/Soft Add), when you choose soft type, the user can setup the address by remote access.

ADDR SOFT：setup soft address . Press UP/DOWN" keys of your controller and setup the camera ID from 0~254.

ADDR HARD: Setup hard address. Only can be changed by DIP Switch.

Notice: Please reboot the dome camera after reset the camera ID.

4.2.3 Motion



Motion setup is to setup preset and packing action function.

SET FRAME SCAN: setup the LEFT/RIGHT extreme position between two presets.

POWER UP : This function enables to resume the last action executed before power down.

NONE : No action.

CRUISE: Cruise action between presets position.

AUTO SCAN: 360°continious scan.

RANDOM SCAN: 360°intermittemt scan action. FRAME SCAN:

PARK TIME : Parking action during idle time.

Time setting: 15-60 (Seconds) ,2...60M (Minutes) ,2...12H (Hours)

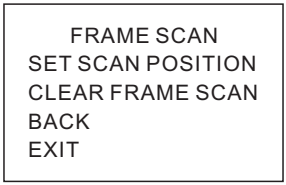
PARK ACTION : This function enables to locate the camera to specific position automatically

if operator doesn't operate the controller for a while. The Park Time can be defined as an interval.

FRAME SCAN SPEED: Set the speed between two presets from1~32.

RANDOM SCAN SPEED: set the speed of 360° continuous and intermittent scan.

◆ Set Frame Scan



SET SCAN POSITION：Set up scan range between two positions (Left/Right extreme position).
CLEAR FRAME SCAN：Deletes frame scan.

1. Set Scan Position

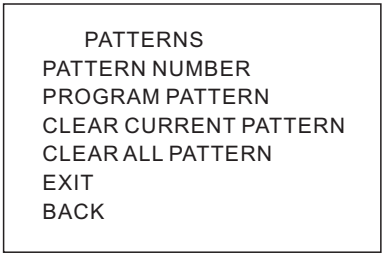
(1) Move the cursor to <Set Scan Position> and enter below interface.

(2) Move the cursor to choose the extreme position of preset by using " Left / Right " keys or joystick of your controller, then press "Iris Open" to enter below interface:

2. Clear Frame Scan

Move the cursor to “Clear Frame Scan” to enter, the press “Iris Open” to delete the extreme positions.

4.2.4 Patterns



4 Patterns are supported, please refer to below details:

<PATTERN NUMBER>: Set Pattern number (1~4).

<PROGRAM PATTERN>: Pattern scan program.

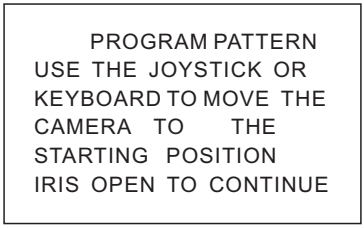
<CLEAR CURRENT PATTERN>: Deletes data in current pattern.

1. Pattern Number

(1)Move the cursor to “PATTERN NUMBER” by using direction keys and select pattern number, then press “Iris OPEN” to confirm.

2. Program Pattern

(1)Move the cursor to “Program Pattern” by using direction keys or joystick of your controller and press “IRIS OPEN” to enter below interface.

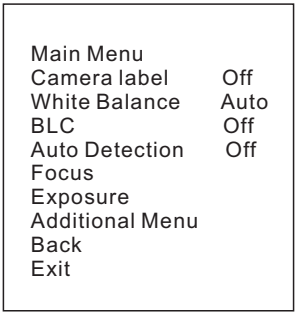


(2)Using keyboard or joystick of your controller to locate the start position, then press “Iris Open” to enter.

(3)Using keyboard or joystick of controller to edit pattern route and action, Max 100 actions, then press “Iris Open” to save.

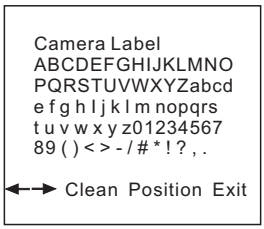
4.2.5 Camera setup

We are using Samsung SDM-100P camera to explain below operation.



Notice: “Up/Down” keys for option, “Left/Right” keys for details, “Iris Open” for sub-menu.

1.Camera Label setup: press “Iris Open” to enter sub-menu and edit camera lable.

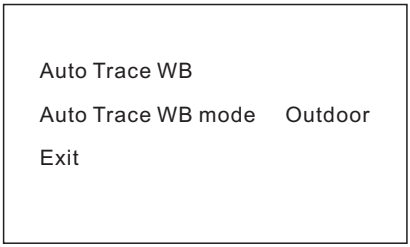


Using cursor to select the letter, then press “Iris Open” key to save the setup.

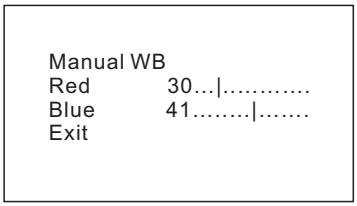
2. White Balance setup

WB Mode: Auto Trace / Manual / Auto

2.1 Auto Trace : Indoor/Outdoor, The camera can automatically adjust ambient light from 1800K~10500K（Indoor： 3000～10,500K; Outdoor: 1,800～10,500K，）to ensure the most nature image effect.



2.2 Manual: Close auto WB, adjust Red and Blue level manually.



Red adjust range: 0~100 Blue adjust range: 0~100

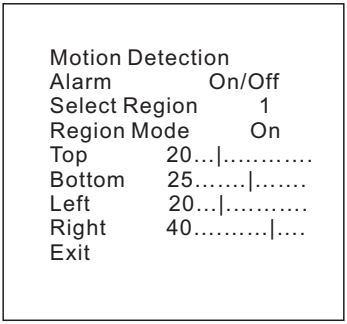
2.3 Auto BW : This mode is the most accurate and reliable for most places.

3. Backlight Compensation setup

Backlight High/Middle/Low/Off

4.Motion Detection setup

Match the Alarm sensor input to one of preset positions. If an external sensor is activated, camera will move to corresponding preset position when this item is predefined.



Alarm : On/Off

Region: 1~4

Region Mode: On / Off

5.Focus Setup

Focus	
Mode	Auto
Zoom trace mode	On
Zoom trace speed	Fast
Digital Zoom	On
Show Zoom	Off
Initial Zoom Position	Off
Lens Initialization	
Exit	

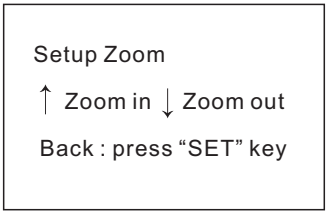
1.Mode: Auto, Manual, One-off Auto focus. Press “Iris Open” to enter sub-menu.

One-off auto focus: Once the image zoom changes, the camera will automatically focus and fix the status till the image change again.

Notice: do not use Auto Focus under the below conditions.

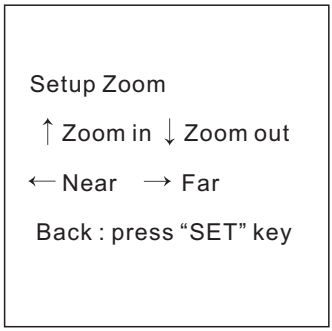
- The target is too dark (such as black clothes or curtains).
- The target is very smooth(like car surface)
- The brightness contrast of the target is not very clear.
- Too strong high light or back light.
- Too high contrast.
- Some shade in front of the target.

(1) Auto mode setup:



Using the direction keys to enlarge or downsize, press “ Iris/Open” key to back.

(2) One-off Auto focus and Manual focus Adjustment:

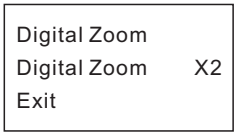


2. Zoom trace mode:

Manual Focus: Off. Auto and One-off Auto Focus: On / Off.

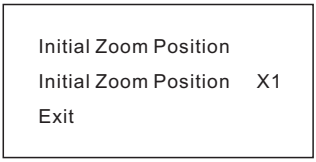
3. Zoom trace speed: Fast/Slow.

4. Digital zoom: On / Off , range: X2~X10.



5.Show zoom: On / Off.

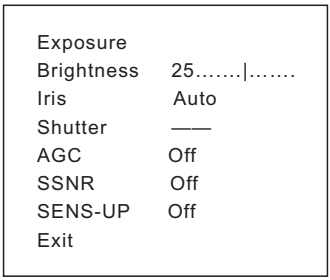
6.Initial zoom position：Using direction keys to move the cursor to “On”, then press “Iris Open” to set up.



Zoom range: X1~X10

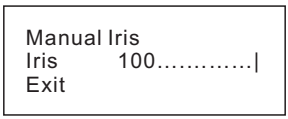
7. Lens Initialization: press “Iris open/Set” key to initialize the lens.

8. Exposure setup:



Brightness range: 0~100.

Iris：Auto/ Manual. Press “Iris Open” to enter into manual setup

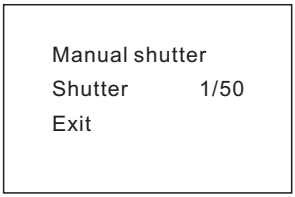


If the number of iris is set to higher, the image will be brighter.

Shutter mode: Flicker / Manual / Auto

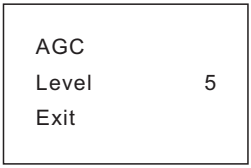
The shutter speed of Anti-flash is 1/100（NTSC），1/120（PAL）

Manual mode setting (PAL）:2X、4X、6X、8X、10X、12X、14X、16X、24X、32X、64X、128X、1/120000、1/60000、1/30000、1/10000、/1/7000、1/5000、1/2500、1/1600、1/1000、1/700、1/500、1/250、1/100、1/50.



Notice: Auto shutter setting only for manual iris mode.

AGC: High / Middle/ Low / Off.
Enhances image brightness automatically in case that luminance level of image signal is too low.
Range: 5-41



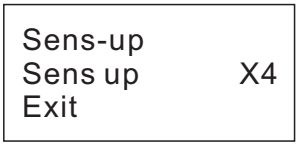
SSNR: High / Middle / Low / Off

Enhances images by reducing noises when gain level of images too high.

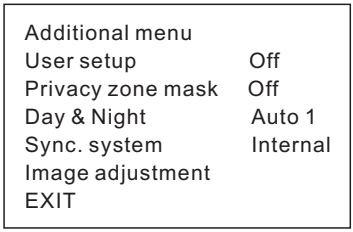
Sens-up: Manual / Off

Adjust CCD exposure time.

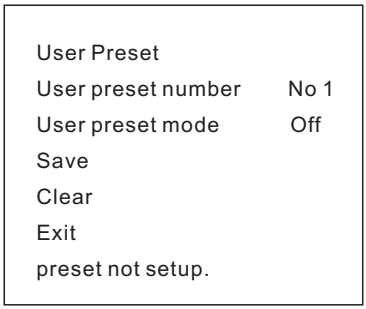
Auto mode setting:2X、4X、6X、8X、10X、12X、14X、16X、24X、32X、64X、128X.



9 .Additional menu:

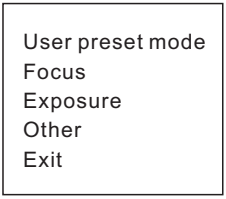


(1)User preset setup: On / Off

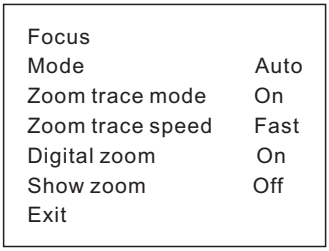


8 user preset number, 1~8.

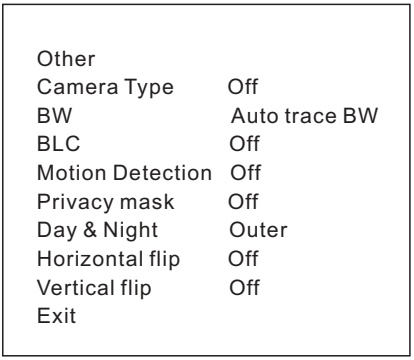
User Preset mode: use direction keys to “On” and press “Iris/Open” to setup.



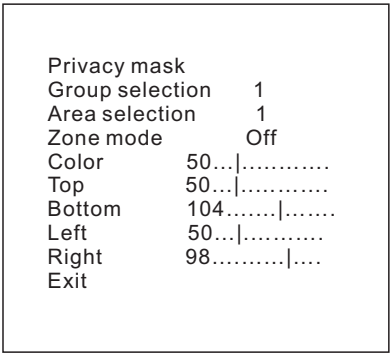
Focus: Using direction keys to “Focus” and press “Iris/Open” key to set up.



Other：refer to below details.



(2) Privacy mask

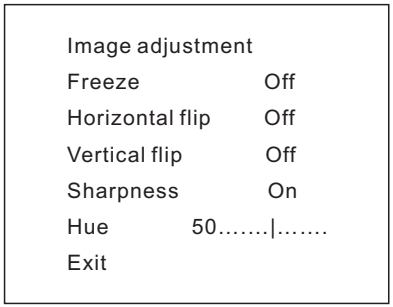


Group selection: 1~ 8
Area selection: 1~4 zone / group
Zone mode: On / Off
Color: color, range of privacy zone is 0~100.
Top: ordinate position on the top of zone.
Bottom: ordinate position on the bottom.
Left: horizontal abscissa position on the left side.
Right: horizontal abscissa position on the left side.

(3) Day / Night: Day and Night function. Auto 1/ Auto 2 / Outer/ Color/ B&W mode.
B&W mode: suit for night work.
Color mode: suit for daytime.
Auto mode: change day and night mode automatically according to the environment illumination. Auto 1 is faster than Auto 2.

(4) Synchronous mode: internal, unchangeable.

(5) Image adjustment.

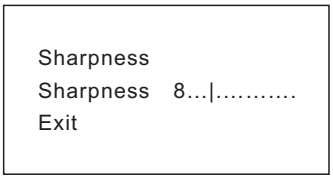


Freeze : Camera starts freezing the image of start point , as soon as camera stops at preset end point, camera starts display live images.

Horizontal flip : image will flip 180° when you start up . Normal when shutdown.

Vertical flip: image will slip 180°when you start up, and normal when shutdown.

Sharpness: adjust the sharpness of the edges. Range: 0~31.

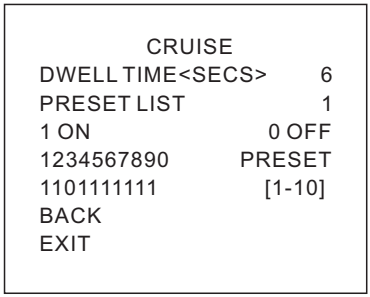


Hue: adjust the image hue, range: 0~100.

Re-boot: restart the camera.

Exit: exit camera menu.

4.2.6 Cruise Setting.



Auto cruise : set up preset scan route.

〈Dwell Time (Sec)>: preset cruise dwell time, range:1～250 Sec.

〈Preset List>: 3 pages.30 presets.

〈1234567890>： preset position in the preset list.

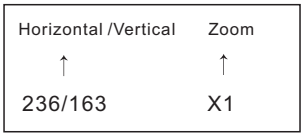
〈110111 1111>： 1 means the preset position corresponding to above preset list is elected to cruise list; 0 means overleap.

〈Back>： save the setup and back to main menu.

<Exit>： Exit OSD menu

4.2.7 Display Setup

Display setup: On/Off, set up the orientation display or not.



4.2.8 Restore Factory Default.

Move cursor to <RESTORE FACTORY DEFAULT> and press “Iris/Open to restore factory default.

4.2.9 Reboot System>

Move cursor to <Reboot System > and press “Iris /Open” to reboot the system. Easy to change the Soft/Hard address by remote and no need to power off.

4.2.10 Exit: Move cursor to <Exit> and press “Iris /Open” to exit the OSD menu.

5.Trouble Shooting

Troubles	Reason	Solution
No action, no image after power on	Connect wrong cable.	Correct the connection
	Power supply damaged.	Change
	Bad connection	Eliminate the bad connection
Out of control after power up	Maybe user setup wrong IP, Protocol and Baud rate.	Reset IP, Protocol and Baud rate
	RS-485 cable reverse connection or disconnection.	Check RS-485 connection cable
Screen not stable	Video cable is bad connection	Eliminate the bad connection
	Power is not enough.	Change
Discontinuity while work	RS-485 cable is bad connection or disconnection	Check RS-485 connection cable
	RS-485 cable broken	Check RS-485 connection cable

6.Safety Information

1. Transportation

   Do not force, shake and marinate during transportation, storage and installation.

2. Installation

   Please handle with care, do not press the camera and its' parts when you install, do not connect before you install the cover.

3. Power cable, Video cable and control cable.

   Use shield wire and do not mix with other cables.

4 Electrical safety

   Keep the camera or signal transmission wire away from high voltage equipment or cable (at least 50 meters), take lightning protection and surge protection.

5. Clean

   When cleaning , use dry and soft cloth or neutral cleanser to clean the camera cover.

6.Must be sealed closely , do not spray water or liquid onto parts of camera , doing so may cause damage.

7. Do not use the camera in extreme temperature or humidity environment.

8. Do not install the camera close to air outlet of air condition.

   Camera lens will be misty because of water condensation under below conditions:

- Extreme temperature change.
- The room full of smoking or dust.

9. Do not locate the camera towards extremely bright objects such as sun and spotlight, as this may damage the CCD image sensor.